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PATENT DOCKET ADMINISTRATION RE/R11/A109
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CHOW, CHARLES CHIANG	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/325,110	Applicant(s) ANSELMO, CARL S.	
	Examiner Charles Chow	Art Unit 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *9-10, 13-14, 19-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,11,12,15-18 and 21-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Detailed Action
for
Amendment Received on 12/12/2005.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 3-5, 11-12, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill et al. (US 6,173,178 B1) in view of Green et al. (US 5,073,930).

Regarding claim 1, Hammill et al. (Hammill) teaches a system for providing high frequency data communication [Fig. 1] for the high frequency satellite data communication system [col. 3, line 53 to col. 4, line 25], the system comprising

a plurality of communication satellites [col. 1, lines 18-26], having uplink and downlink antennas capable of receiving and transmitting a plurality of signals [the 6 satellite antenna provides the downlink, uplink multiple beams, for communication with ground station, col. 4, lines 13-25],

the satellite being a reconfigurable satellite [the re-configuration for various different frequencies, different beam bandwidth, beam sizes, via information transmitted from ground station, col. 4, lines 13-25],

a routing table storing tuning information therein, for controlling the frequency reconfiguration of the communication frequency in response to said tuning information [the routing table such as for Nielsen stations in table 1, table 2, for united states in col. 3, lines 57-60, which has the tuning information for the reconfiguring the satellite beams to different frequencies, col. 3, lines 13-16 & col. 4, lines 21-35, in response to the frequency

assignment of the tuning information in 30-35 GHz frequency bandwidth in col. 3, line 53 to col. 4, line 11].

Hammill fails to teach the said satellite coupled to said communication circuit for controlling the frequency via synthesizer & controller.

Green et al. (Green) teaches a controller for reconfiguring the satellite frequency, a programmable synthesizer coupled to an up converter and a down converter of a communication control circuit [the controller 206 for tuning the up/down converter 204/200, utilizing PLL 248/226 in Fig. 2/Fig. 3, col. 12, lines 16-19 & col. 13, line 61 to col. 14, line 13; the plurality of satellites in abstract; the up converter 204 & down converter 200 in Fig. 3 are respectively coupled to the programmable phase locked loop 226/224 in col. 13, lines 3-33], for a satellite television transponder [title, abstract], in order to map frequencies via satellite transponder, to distribute television signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to upgrade Hammill with Green's programmable synthesizer of the up/down converting, in order to map the frequencies via satellite transponder, to distribute television signal.

Regarding **claims 3, 12**, Green teaches said communication control circuit comprises an upconverter and a down converter [the microcomputer 206, Fig. 3, and its associated control circuit for PLL 226/248].

Regarding **claims 4, 11**, Green teaches said communications control circuit comprises a transponder [the communication control circuit in Fig. 3 of the satellite transponder]

Regarding **claim 5**, Green teaches the up converter [204] and down converter [200].

Regarding **claim 28**, Hammill teaches a method of configuring a satellite [col. 1, lines 14-17] comprising deploying a reconfigurable satellite [the reconfiguring of a satellite, col. 4, lines 16-25, for the inherently disclosing of the deploying a reconfigurable satellite],

storing frequency tuning information in a routing table [the routing table such as for Nielsen stations in table 1, table 2, for united states in col. 3, lines 57-60, which has the tuning information for the reconfiguring the satellite beams to different frequencies in col. 3, lines 13-16],

transmitting reconfiguration instructions to said satellite [the ground station transmits the beam reconfiguring information to satellite, col. 4, lines 12-15] ;

reconfiguring the frequency configuration of the payload of the reconfigurable satellite in response to the tuning information in the routing table [the routing table the routing table such as for Nielsen stations in table 1, table 2, for united states in col. 3, lines 57-60, which has the tuning information for the reconfiguring, tuning, the satellite beams to different frequencies, col. 3, lines 13-16 & col. 4, lines 21-35, in response to the frequency assignment of the tuning information in 30-35 GHz frequency bandwidth in col. 3, line 53 to col. 4, line 11].

Hammill fails to teach the changing an up converter frequency and down converter frequency using programmable synthesizer. Green et al. (Green) teaches a programmable synthesizer coupled to an up converter and a down converter of a communication control circuit [the controller 206 for tuning the up/down converter 204/200, utilizing PLL 248/226 in Fig. 2/Fig. 3, col. 12, lines 16-19 & col. 13, line 61 to col. 14, line 13; the plurality of satellites in abstract; the up converter 204 & down converter 200 in Fig. 3 are respectively coupled to the programmable phase locked loop 226/224 in col. 13, lines 3-33], for a satellite television transponder [title, abstract], in order to map frequencies via satellite transponder, to distribute television signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to upgrade Hammill with Green's

programmable synthesizer of the up/down converting, in order to map the frequencies via satellite transponder, to distribute television signal.

2. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill W in view of Wolcott et al. (US 6,317,583 B1), and further in view of Green-'930.

Regarding **claim 15**, Hammill teaches a payload for satellite for re-configuring the communication having a route table having tuning information stored therein; and in response to said tuning information [the routing table the routing table such as for Nielsen stations in table 1, table 2, for united states in col. 3, lines 57-60, which has the tuning information for the reconfiguring, tuning, the satellite beams to different frequencies, col. 3, lines 13-16 & col. 4, lines 21-35, in response to the frequency assignment of the tuning information in 30-35 GHz frequency bandwidth in col. 3, line 53 to col. 4, line 11

Hammill fails to teach programmable synthesizer, a receive array, a receive beam forming network, a transmit array, a transmit beam forming network, for the controlling of the satellite communication.

Wolcott teaches these features [the synthesizers in Fig. 5, col. 5, lines 1-29; Fig. 6, the receive arrays 160-162, receiver beam forming network 170, the transmit beam forming network BNF 214, the transmit array 1-85]. Wolcott teaches the reliable beam handover for the mobile terminal ground tracking [col. 6, line 48 to col. 7, line3]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill with Wolcott's satellites in constellation, having tunable synthesizer for beam handover, such the satellite beam reconfiguration could be reliable.

Hammill and Wolcott fail to teach the on-board controller, computer, the communication control circuit being an up converter and a down converter, and a programmable frequency

synthesizer is coupled to the up converter and down converter of a communication control circuit.

Green teaches these features [the communication control circuit for controlling communication of satellite having an on-board controller & computer in Fig. 3, col. 13, line 3 to col. 4, line 13; the communication control circuit being the up converter 204 coupled to programmable phase locked loop 246/248, Fig. 3, col. 13, line 59 to col. 14, line 13, and the down converter 200 coupled to programmable phase locked loop 224/226, col. 13, lines 3-33, for a satellite television transponder, title, abstract], in order to map frequencies via satellite transponder, to distribute television signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Wolcott with Green's programmable synthesizer of the up/down converting, in order to map frequencies via satellite transponder, to distribute television signal.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Green, as applied to claim 1 above, and further in view of Wiswell et al. (US 6,205,319 B1). Regarding **claim 2**, Hammill, Green, fail to teach the claimed features of this claim. Wiswell et al. (Wiswell) teaches, the comprising a beam forming network coupled to uplink and downlink antenna [front figure, the receive/transmit beam phased array 102-108, 120-126; up/down converter 110] for the selectively adjusting of the amplitude and phase antenna beam for receiving/transmitting information [abstract, col. 1, lines 5-9; col. 2, lines 27-30], using ewer multi-beam antennas [col. 1, line 65 to col. 2, line 2; col. 2, lines 8-15], in order to reduce the satellite payload complexity, and the power requirement using fewer beam antennas. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Green, with Wiswell's fewer beam phased array

antennas for receiving and transmitting, in order for the satellite payload to be efficient, of having less complexity, & saving power consumption.

4. Claims 6-7, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Green, as applied to claims 1, 15 above, and further in view of Brown (US 6,157,621).

   Regarding **claim 6**, Hammill, Green, fails to teach this claim limitations. Brown teaches the said communication control circuit comprising a TDMA switch (the time division multiple access switch (in col. 61, lines 24-31, for the communication control circuit). Brown considers the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Wolcott with Brown's TDMA switch, such that the best route path could be selected.

   Regarding **claim 16**, Brown teaches said communication control circuit comprising a TDMA switch (the time division multiple access switch (in col. 61, lines 24-31, for the communication control circuit).

   Regarding **claims 7, 17**, Brown teaches said communication control circuit comprises a packet switch (the packet switch 1306 (Fig. 112A; col. 60, line 65 to col. 61, line 11).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Green, as applied to claim 1 above, and further in view of Galvin (US 6,182,927 B1).

Regarding **claim 8**, Hammill, Green, fails to teach the satellites for LEO, MEO, GSO. However, Galvin teaches the satellites for LEO, MEO, GSO (col. 6, lines 34-54, the low earth orbit satellites 50, GEO 52, the MEOs in Fig 6) for improving the satellite navigation accuracy (col. 2, line 47). Galvin teaches the efficient method to add the augmentation satellites in LEO, or MEO or GEO, the navigation accuracy could be improved (col. 6, lines 34-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Green, with Galvin's adding different augmentation satellites, such that the system could be provide the navigation accuracy.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Pizzicaroli et al. (US 5,813,634), and further in view of Green-'930.

Regarding **claim 18**, Hammill teaches a method of configuring a satellite system [col. 1,lines 14-17] comprising the steps of deploying a reconfigurable satellite [the reconfiguring of a satellite, col. 4, lines 16-25], for the inherently disclosing of the deploying a reconfigurable satellite], transmitting re-configuration instruction to said satellite [col. 4, lines 12-15],

re-configuring of the frequency configuration of the payload of the reconfiguration satellite in response to the tuning information in a route table [the routing table the routing table such as for Nielsen stations in table 1, table 2, for united states in col. 3, lines 57-60, which has the tuning information for the reconfiguring, tuning, the satellite beams to different frequencies, col. 3, lines 13-16 & col. 4, lines 21-35, in response to the frequency assignment of the tuning information in 30-35 GHz frequency bandwidth in col. 3, line 53 to col. 4, line 11].

Hammill fails to teach the re-positioning a satellite from a network position, and moving the reconfigurable satellite into the network position.

Pizzicaroli teaches these features [the replacing of the failing satellite with spare satellite, abstract, Fig. 1; step of deploying a reconfigurable satellite, Fig. 5-6, steps 720, whether to place spare satellite in service; the commanding spare satellite to maneuver into position to provide service in col. 5, lines 41-55; step 725, give spare satellite positional target and authorization; command two satellites to spare orbit in step 750; command satellite to initiate maneuver in step 760], in order to provide reliable satellite communication link by utilizing a spare satellite to replace the failing satellite. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill with Pizzicaroli's repositioning, maneuvering, the spare satellite into operating orbit, in order to provide the reliable communication link, by utilizing the spared satellite.

Hammill and Pizzicaroli fail to teach the changing an up converter frequency and down converter frequency using programmable synthesizer.

Green teaches these features [the communication control circuit for controlling communication of satellite having an on-board controller & computer in Fig. 3, col. 13, line 3 to col. 4, line 13; the communication control circuit being the up converter 204 coupled to programmable phase locked loop 246/248, Fig. 3, col. 13, line 59 to col. 14, line 13, and the down converter 200 coupled to programmable phase locked loop 224/226, col. 13, lines 3-33, for a satellite television transponder, title, abstract], in order to distribute television signal and map frequencies via satellite transponder. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Pixxicaroli with Green's programmable synthesizer of the up/down converting, in order to map frequencies via satellite transponder, to distribute television signal.

7. Claims 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Pizzicaroli, Green, as applied to claim 18 above, and further in view of Brown-'621. Regarding **claim 21**, Hammill, Pizzicaroli, fails to teach the steering antenna and phase shift. Brown teaches the steering antenna and phase shift (col. 14, line 51 to col. 15, line 5) and the beam forming 554/568, beam compensation (Fig. 42, col. 19, lines 15-40). Brown considers the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Pizzicaroli, Green with Brown's steering antenna and phase shift, such that the best route path could be selected.

Regarding **claim 22**, Brown has taught above in claim 1 for the tuning information in the route table.

Regarding **claim 23**, Brown taught the steering antenna, phase shift, the beam compensation for the changing of amplitude or phase of a beam (the beams steering using various microstrip phase delay line in col. 14, line 51 to col. 15, line 4; the beam steering with independently controlling of directivity gain and power gain, and the control for increasing the receive power gain in col. 25, lines 29-52), Hammill teaches the tuning information in the route table 1-2.

Regarding **claims 24, 25**, Brown teaches in claim 1 above for the maintaining of the spacecraft's orientation for the east/west, north/south station keeping (col. 30, lines 7-20);

Regarding **claims 26, 27**, Brown teaches the constantly updating of the route information in the cache memory and receive route information for the updating the routing table from order wire, from RF control channel (col. 43, line 46 to col. 44, line 9; col. 49, lines 10-20).

8. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Green, as applied to claim 28 above, and further in view of Brown (US 6,157,621). Regarding **claim 29**, Hammil and Green fails to teach the step of reconfiguring the payload comprising changing the amplitude or phase coefficients of a beam in response to the tuning information. Brown teaches the reconfiguring the payload comprising the changing of the amplitude or phase coefficient of the beam in response to the tuning information in the routing table (the beams steering using various microstrip phase delay line in col. 14, line 51 to col. 15, line 4; the beam steering with independently controlling of directivity gain and power gain, and the control for increasing the receive power gain in col. 25, lines 29-52). Brown considers the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Green, with Brown's TDMA switch, such that the best route path could be selected. Regarding **claims 30, 31**, Brown teaches the constantly updating of the route information in the cache memory and receive route information for the updating the routing table from order wire, from RF control channel (col. 43, line 46 to col. 44, line 9; col. 49, lines 10-20).

Response to Argument

9. Applicant's arguments filed 12/12/2005 have been fully considered but they are not persuasive.

Regarding applicant's argument that Hammill (US 6,173,178) does not teach the tuning information in routing table for reconfiguring the satellite frequency through the programmable frequency synthesizer & Green does not teach the changing of VCO frequency in response to the routing table [pages 7-8 of applicant's amendment, 12/12/2005],

Regarding the <u>the tuning information in routing table for reconfiguring the satellite frequency through the programmable frequency synthesizer</u>, **Hammill** teaches <u>the tuning information in routing table for reconfiguring the satellite frequency</u> [the routing table such as for Nielsen stations in table 1, table 2, for united states in col. 3, lines 57-60, which has the tuning information for the reconfiguring, tuning, the satellite beams to different frequencies, col. 3, lines 13-16 & col. 4, lines 21-35, in response to the frequency assignment of the tuning information in 30-35 GHz frequency bandwidth in col. 3, line 53 to col. 4, line 11] <u>in combination with Green's PLL synthesizer 248/226</u>, for the reconfiguring of the satellite frequency.

Regarding <u>Green does not teach the changing of VCO frequency in response to the routing table</u>, **Green** teaches the controller 206 for reconfiguring the satellite frequency utilizing programmable synthesizer PLL coupled to an up converter and a down converter of a communication control circuit [the controller 206 for tuning the up/down converter 204/200, utilizing PLL 248/226 in Fig. 2/Fig. 3, col. 12, lines 16-19 & col. 13, line 61 to col. 14, line 13; the plurality of satellites in abstract; the up converter 204 & down converter 200 in Fig. 3 are respectively coupled to the programmable phase locked loop 226/224 in col.

13, lines 3-33], in combination with Hammill's tuning information according the routing table for United States above, in order to map the frequencies via satellite transponder, to distribute television signal.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Chow whose telephone number is (703) 306-5615. The examiner can normally be reached on 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information

for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow C.C.

January 23, 2006.

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